Synopsis

On

‘Green Rural Development’ by Exploring its Linkages with Traditional Knowledge and Habitat: A Case Study of Mathura Rural Region

In

MANAGEMENT

BY

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SECTION I

1.1 Introduction to the Environmental Management and Green Rural Development

1.1.1 Environment Management

Over ages, man, with his desirable and non-desirable activities, has affected the environment harmfully. However, awareness of the damage has also given rise to a lot of clamour about minimizing these effects. Across the globe, governments, trade associations, supply chains and other social and financial stakeholders are bent on pressing the issue further. We can refer environmental management as managing internal and outside environment of an organization. In other words we can define environmental management system as the part of "overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy."

At present, organizations, also influenced by growing social and legal regulations, are more focused to the environmental issues due to the new environmental laws, socio-economic influences, to gain competitive advantage over the competitors, as well as increasing environmental awareness among the general public. In current scenario when non renewal sources of energy are lacking day by day, it is very important to look for the alternative sources of energy which are environmental friendly too. This practice can reduce the overall cost of production which ultimately results into profit for the organization and sustainable growth as well.

1.1.2 Green Rural Development

Under the broader context of environment management, Green Rural Development can be referred as various activities that regenerate and conserve the natural resource base and habitat, innovate and use clean materials, Traditional processes and modern technologies to create environment-friendly products, livelihoods, enterprises and jobs. Poverty reduction and economic growth can be achieved when natural resources are managed on sustainable basis. Green Rural Development can result in various outcomes for the region or nation which are as follows:

(a) Improved resource conservation:

In the Indian context, there are two schemes presently functional: MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Programme) and IWDP (Integrated Watershed Development Programme) focuses on regeneration of natural resources. Enhanced productivity can be achieved by conserving and regenerating land and water resources which leads to increased agricultural outputs and improved livelihood. These schemes can help in reducing soil losses, recharge groundwater and improve biodiversity.

(b) Improved resource efficiency:

Rural development schemes can improve the efficiency of natural resource use in rural livelihood and essential services. Under IWDP, a support to farmer group can be provided to adopt methods that improve efficiency of irrigation water which can be done through appropriate crop choices, farming techniques, drip and sprinkler irrigation system, and improved field irrigation practices.

(c) Reduced negative Environmental aspects:

Another scheme recently launched by Government of India, Nirmal Bharat Abhiyan, can also greatly help in improvement of local sanitation, hygiene and health of local residents. (UNDP Report, 2012)

1.2 Emergence of Green Profit:

A new term named Green Profit, has evolved rapidly in a span of few years globally. This term is a result of implementing environment friendly practices particularly in a rural or semi-urban surrounding. As the name implies, green profit is an outcome which has "green" purpose. Green inventions are environmental friendly inventions that often includes: energy efficiency, recycling, safety and health concerns, renewable resources, and more. We can also define Green Profit as achieving profit with sustainability at least cost. It means using natural renewable energy resources instead of using non-renewal energy resources which will ultimately turn in to saving of money and results in profit. For example now a day Petrol/Diesel prices are going high, electricity bills are also jumping like never before. So there is a need to implement concept of "Green Profit" which can reduce overall cost of energy and ultimately turns into profit. The world has a fixed amount of natural resources, some of which are already depleted or ruined. For example: household batteries and electronics often contain dangerous chemicals that can pollute the groundwater after disposal, contaminating our soil and water with chemicals that cannot be removed from the drinking water supply and the food crops grown on contaminated soil. The risks to human health are high. These are few of the reasons which force us to think Green.

Operating at global scale can be cited to highlight the significance of environmental initiatives even for generating environmental advantages:

(a) Texas Instruments'(www.ti.com) reduction of hazardous waste by 44% has a wide impact on profitability and productivity. The company recycled 81% of nonhazardous solid wastes in its U.S. operations (and 75% worldwide), which saves $23 million worth of water and energy. TI spends $160 million on manufacturing resources each quarter; the environmental programs are designed to optimize the company's resources by at least 10% - to save at least $16 million each quarter. Actually TI's environmental achievement at this writing has exceeded the 10% target.

(b) Sony (www.sony.com) corporation's U.S. operations generated $1.8 million by reducing industrial waste (36000 tons of industrial waste including printed circuit-boards and office papers) and reduced electricity use by $1.3 million.

(c) Philips (www.philips.com) electronics has saved more than $400 million per year by reducing waste by 28 percent, energy use by 23 percent and water use 34 percent. Philips saved 17 percent more than it had originally projected. (Pamela J. Gordon, 2000).

Indian contribution to earn Green Profit:

1. India has a market value of £191 billion in low-carbon and environmental goods & services (LCEGS). With a 6% share of the £3,046-billion global market, the country is tied with Japan at the third position. (The financial Express)

2. A world wide survey conducted by national geographic in 2012 on "Consumer choice and Environment" in which Indian consumers retained the top position followed by China.

As per the above shown examples, it can be summed up that Green Profit has become attractive dimension globally for saving the cost by using environment friendly resources. Though Companies have already identified the relevance of Green Profit for their cost saving and benefit but still this concept is not implemented at a large level for the Green Rural Development in India. Although there are some initiatives taken by the Ministry of Rural Development to promote Greening Rural Development but these steps are not enough for the large rural population. If this Greening concept can be utilized at a large level then it will reduce the dependency of Rural people on external resources for production which are very costly hence people will be saving more money. If Green practices are applied with the help of corporate, NGOs and government then local resident can generate power, biogas, bio-diesel by implementing solar plants, Biogas plants, Wind Mills, Jatropha planting etc. These practices will generate employment opportunities, source of earning and will provide a sustainable basis for their survival and development.

1.3 Traditional Knowledge and its linkages with Green Rural Development and Environment Management:

Traditional knowledge refers to the knowledge, innovations and practices of local communities around the world. It is developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. It can also be referred to as an oral traditional for it is practiced, sung, danced, painted, carved, chanted and performed down through millennia. Traditional knowledge is mainly practical in nature, particularly in such fields as agriculture, fisheries, health, horticulture, forestry and environmental management in general.

Traditional knowledge broadly comprised of two aspects. The first is practical base as traditional concepts of wind or water currents for example are based on cumulative collective experience of people who had a practical knowledge of land on which they were dependent for every aspect of life. Children learn directly from their parents, uncle, aunts, grand-parents and other elders as they observe their elders and imitates the behavior. Second aspect of traditional knowledge is spiritual aspect which is integral to the ethical beliefs of Indigenous people. Scientifically the truth of their belief cannot be checked but it can be witnessed by its social existence and transmission. For example, it is a general characteristic of traditional knowledge is the belief that all components of environment like human beings, plant and animal have a life force. And human beings are not considered as superior of all components of creation. Some traditions consider human being at the last to be placed on the earth by the creator which means they are weakest component of environment. Therefore, they require support from other components of the environment for survival. These two aspects of traditional knowledge arose out of direct experience with the environment and from the interpretations of that experience. Human being responded to the daily and seasonal cycles of the world around them, which can also be seen as another characteristic of the traditional knowledge. (Bruyere and Bergland, 2004)

Traditional Knowledge is not yet fully utilized for Green Rural Development. If this knowledge can be utilized with support from Government, Corporate, NGOs to harmonize modern technologies with traditional and indigenous knowledge for sustainable rural development then it can led to Agricultural Development, Natural Resource Management, which leads to Environmental Development. Furthermore, Community Development, Primary Health Care and preventing medicine as well. On the other hand, Poverty reduction can also be achieved as livelihood of poor people depends upon specific skills and knowledge which is an important part of their survival.

Determinants of Traditional Knowledge:

There are the following indicators which will be indicative aspects where Traditional Knowledge can be utilized to build the long term capacity in Rural areas:

a). Agriculture

b) Education

c) Employment/ Industry

d) Environmental Resources

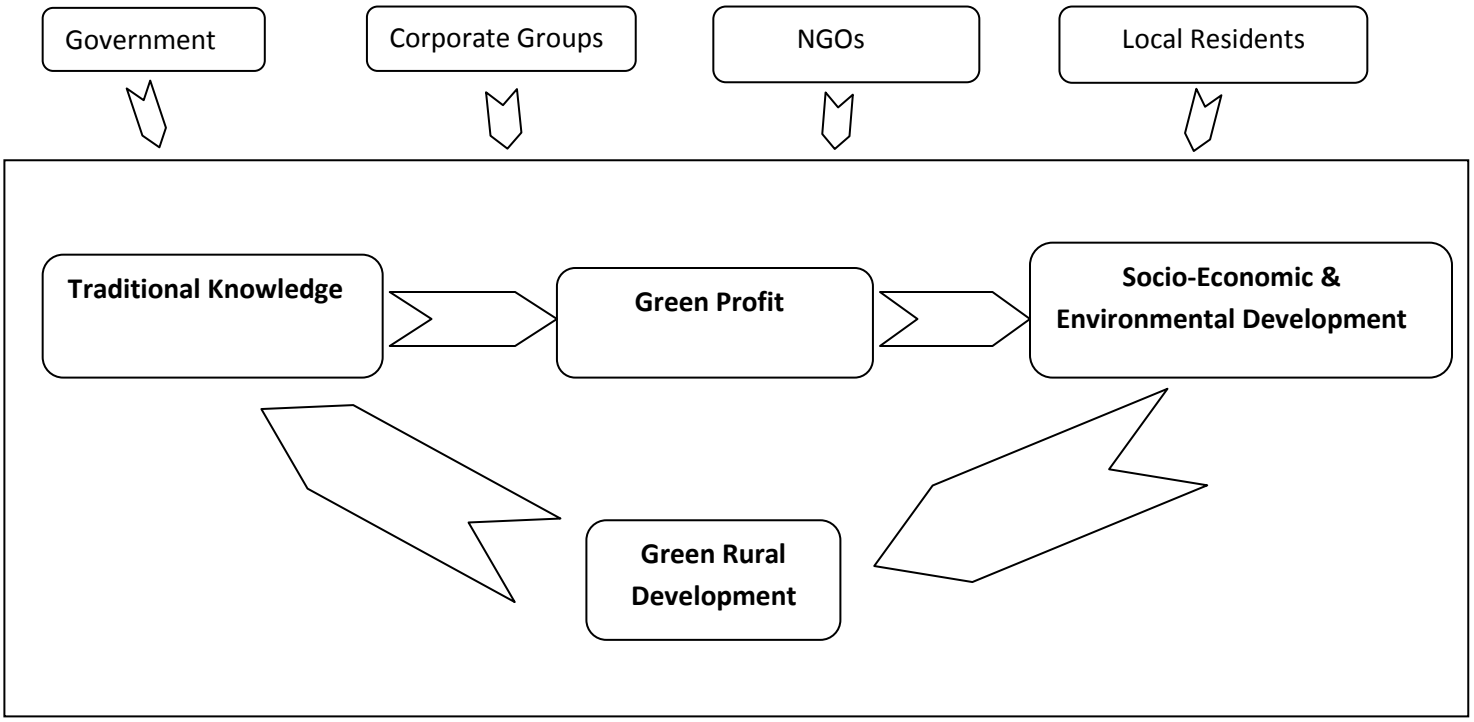
e) Green Technology

f) Health Care

g) Social Community

h) Spiritual Practices

1.4 LINKAGES BETWEEN GREEN RURAL DEVELOPMENT, GREEN PROFIT AND TRADITIONAL KNOWLEDGE:



As per the highlighted figure, efficient use of Traditional Knowledge in coordination with the modern technology can help in generating Green opportunities for employment, agriculture, health care system, poverty eradication and in removal of vulnerabilities of rural areas which can lead to Green Profit and such profit indicates the development on socio-economic and environmental level which ultimately leads to Green Rural Development. In coordination of corporate groups, NGOs and Government, such a holistic Green Rural Development Program can be formulated which can result in Socio-economic and environmental development in the stated rural area

1.5 INTRODUCTION TO MATHURA RURAL REGION:

Mathura has an ancient history. According to Hindu scriptures, Mathura is birthplace of Lord Krishna therefore it is a prime destination for pilgrimage in India. As per the Archeological survey of India plaque Mathura museum, city is mentioned in the oldest Indian epic, the Ramayana. In the epic, the Ikshwaku prince Shatrughna, slays a demon called Lavanasura and claims the land. Afterwards, the place came to be known as Madhuvan as it was thickly wooded, then Madhupura and later on Mathura.

Mathura District has 734 inhabited villages; all villages are grouped into 89 rural panchayats which is further divided into 10 Blocks named Baldeo, Chaumuha, Chhata, Farah, Goverdhan, Mat, Mathura, Nandgaon, Nauhjhil and Raya. Though the district has been covered by train and road but its rural component still remain underdeveloped socially and economically while 70% of total population of Mathura region still resides in the rural areas.

Problems of Backwardness in Mathura Rural Region

The Mathura has been divided into 18 backward slum zones within which 68 slum pockets have been identified. In total there are 232 slums in Mathura UA. As per statistics from District Urban Development Agency (DUDA), the total slum population in the city was around 1,44,000 in 2001. This accounts for more than 40% of the total population of the city. More than 50% of the population in these slums belongs to SC/ST categories. There is huge gap in basic infrastructure in the slums. The literacy rate of these slums is 55%.

Problems in these areas:

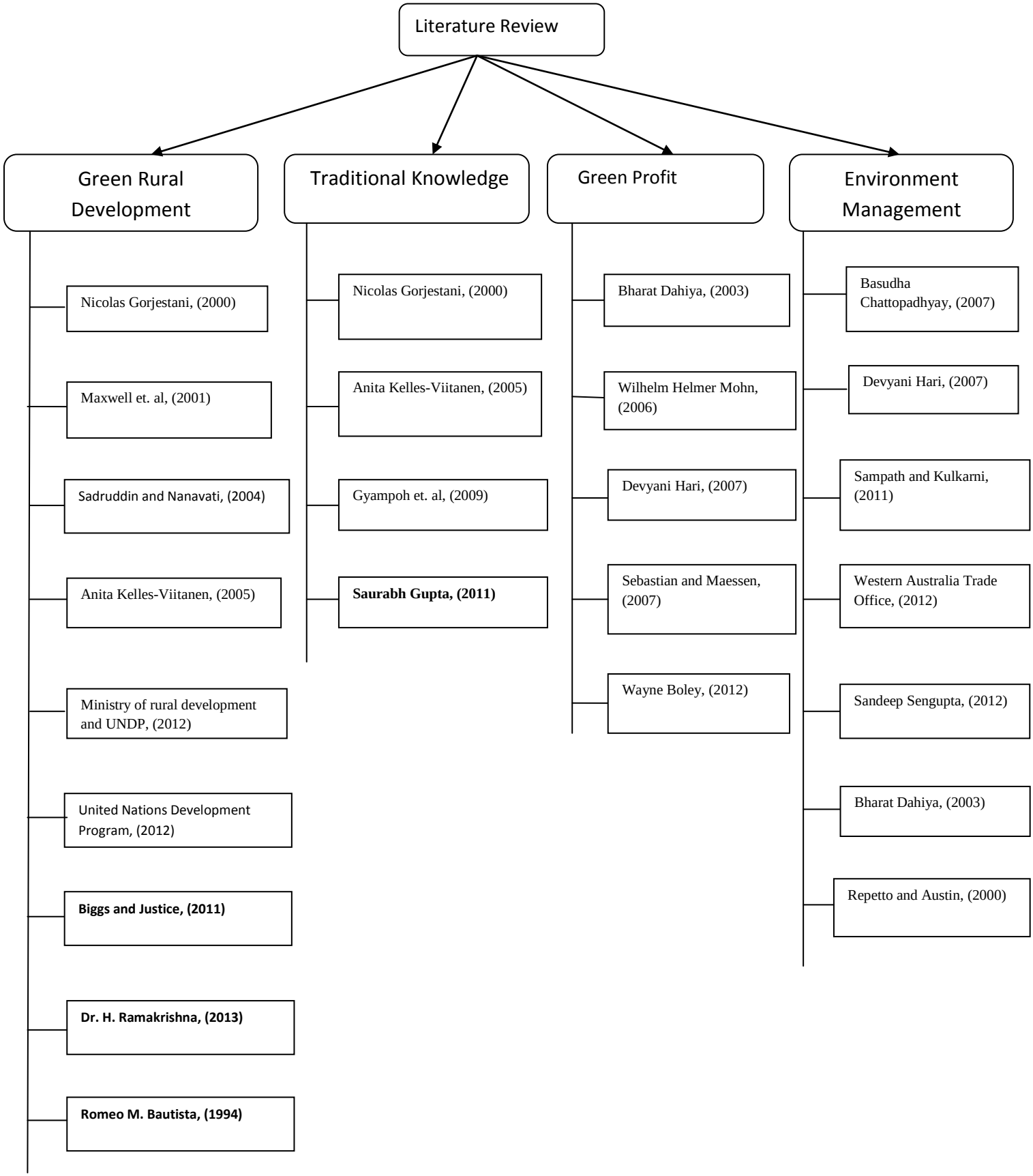
- No sewer line or adequate storm water drainage facilities in the rural areas.
- 40% of slums have partial coverage of roads and drainage along the roads.
- Only 5% of slums have more than 50% of adequate road and drain coverage infrastructure
- Only 1% of the slums are covered with water supply facilities.
- Environmental infrastructure is very poor in these areas as there is a need of roads, streets, lanes, street lighting and housing for BPL (Below Poverty Line).
- Most of the rural area lacks basic civic amenities like proper roads, drainage, sewerage, protected water supply, street lights, toilets, solid waste management etc.
- Mathura UA sex ratio of 863, which is lower than the state average (898) and much below the national average (940).
- There is scarcity of water due to very less supply sources in proportion to the population.
- Railway connectivity to the rural area is very less and 3 blocks which are Nohjhil, Mat and Baldeo, there is not even a single railway station.
- There is a very less no. of registered industries in rural area of Mathura district due to which there are less chance of employment while the population is high in these rural blocks.
- Number of well equipped hospitals are very less in proportion to the current population size.
- Problem of the siltation is in whole district which reduces the flow and choking at culverts.
- Problem of cleaning in the whole region due to the limited resources and poverty.
- Clogging of storm water drainage system is the biggest problem reported specially around Railway underpasses during heavy rains.

(Source: Jnnurm Report of Mathura District)

1.6: NEED FOR THE STUDY

Since the objectives of the proposed study requires an understanding and scanning of the Socio-economic and environmental dimensions for developing a Green Rural Development Program through promoting Traditional knowledge, so that researcher can formulate a comprehensive policy for Sustainable Green Rural Development of backward Mathura Rural Region by involving local/regional industries after completion of the study. The rationale for conducting this research is to map all the existing vulnerabilities in this region so that such proposed development program can be formulated which can help in Socio-economic and environmental development of the stated region. This research will also highlight the need to preserve and improve the quality of the rural environment integrated with all Community policies that relate to rural development. Researcher will be trying to set a fair balance of public spending, infrastructure investments and educational, health and communications services between rural and urban areas. A growing share of available resources should be used for promoting rural development and securing environmental objectives which will definitely result in upliftment of stated region.

SECTION 2: Literature Review (Synthesized form)



2.1 National Studies

1. Greening Rural Development in India

Ravi Chopra and UNDP Associates, (2012) states that green rural development can stimulate rural economies, create jobs and helps in maintaining critical ecosystem services and strengthen climate resilience of the poor. This report summarizes the insights and potential of six major rural development schemes for delivering environmental benefits. It also highlights the green results of six schemes initiated by the government and also suggests some scheme-wise recommendations to the Ministry of Rural Development.

2. Village Adoption Scheme: A model for rural development

Shahid Sadruddin Nanavati, (2004) highlights the model of rural development by "Village Adoption Scheme" to energize rural economy in India. Gao Vikas Sangathit Prayatna (GVSP), A NGO of Mumbai, has revealed 6 backward villages in the state of Maharashtra sent the most migrants into cities. GVSP planned a project in identified region considering social, traditional, cultural, legal, ethnic, religious, economic and political layers and enable the region to build upon them to create new methodology of operation. In span of 5 years ending in 2002, they have initiated 3 secondary schools, 4 new fully equipped clinic, new city buses with the coordination of Royal and Lions clubs and some funding bodies of districts which has raised the standard of living and provided basic facilities to the villagers which caused lesser migration of people from villages to cities. After 6.5 years, GVSP handed over the title of the house, temple and the leased land in the central village to the village council is just like advising body to the village council and now acts as advising body to the village council when they ask for it.

3. Green power – Lighting up Rural India

Devyani Hari, (2007) highlights the various uses of SHS (solar home systems/lanterns) that have been successfully installed in India and have displaced carbon emitting fuels such as Kerosene and diesel. It also states the various problems of the affordability in the initial days of solar home systems due to higher cost of installation, no system of credit sales etc. But by the passage of time several initiatives were taken by solar integrators (entrepreneurs) to overcome these barriers like availability of credit system for purchase, prompt and reliable after sale services, establishment of linkages with self help groups, NGOs etc. Today, these small steps results more profit for the entrepreneurs by installing of such SHS in various houses and large saving for the households and the major benefits for the environment by reducing carbon emitting fuels.

4. Ministry of Rural Development outlines greening agenda for Rural Development Schemes

As per this press release by Ministry of Rural Development, (2012) with support from the United Nations Development Program (UNDP) highlights the strategies for inclusive rural development embodying the principles of environmental sustainability with the objective of 'faster, more inclusive and sustainable growth.' This report has examined six schemes of Government of India (GoI): Mahatma Gandhi National Rural Employment Scheme (MGNREGS), National Rural Livelihoods Mission(NRLM), Integrated Watersheds Development Programme (IWDP), Indira Awaas Yojana (IAY), National Rural Drinking Water Programme (NRDWP) and Nirmal Bharat Abhiyan (NBA) to recommend actions and measures to achieve greening outcomes.

5. Managing the Environment: A growing problem for a growing power

In this report, Sengupta et.al, (2012) indicates that as India has become a growing power of the world as it is rising on the basis of literacy rate, life expectancy, infant mortality, agricultural production etc., its environment related problems are also growing as the 2012 EPI (Environmental performance index), a metric developed by Yale and Columbia Universities, ranked India's air as the unhealthiest in the world which costs nearly $3 billion due to poor Indian health, similarly in water sector as India has only 4 percent of the world's usable fresh water supply with having 17 percent of its population. But due to excessive exploration, underground water lever is declining by 4cm per annum which has become a serious matter of concern. Other natural resources in India like quality of land, forests, fisheries, biodiversity, have also faced increased pressure over the last two decades. Yet there are some strands of hope as India is now focusing on renewable source development in recent years. With 80 percent of India of 2030 still to be built, there is still an opportunity for course correction. Indian bottom line needs to be more efficient, technologically more advanced in its use and disposal of natural resources. It will also need to have more focus on power consumption, modernity and development.

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6. India: Environmental Management and Environmental Regulation

Sampath and Kulkarni, (2011) provides an overview of the social and environmental challenges facing India now and in next 20 years, As India is a rapidly growing economy of the world as it has a population of over 1.1 billion out of them 65 percent are under age of 30 and economy will grow up by 8 to 10 percent which is higher than most of the country which is spurred by IT sector, infrastructure and manufacturing, chemical and real estate sectors as they have become development pillar for the nation. But this huge population also brings social issues which has environmental implications. Therefore to control these issues, now environmental regulations are being enforced more stringently than earlier, and an overall "environmental awareness" has begun. These practices have emphasized Managers of Indian companies to take both environmental requirements and best practices seriously. But after all these efforts, there is a long way to go to control major challenges. As environmental regulations are still at initial stage in India but with the passage of time these regulations will become an area of concern as an increasingly wealthy citizenry demands more advanced environmental controls and a reduction in exposure to industrial pollutants.

7. Sustainable Urban Development in India: Some Issues

In this paper, Basudha Chattopadhyay, (2007) initially discussed the meaning of sustainable development and sustainable city forms in India. This paper indicates the reason of urban environmental degradation is use of non – renewal resources of energy. Simultaneously, climate change is has also become a major problem for the world which is also affecting various economies. Sustainable urban development and sustainable city form should be adopted to control manmade pollution of water, air and environment which affect climates and should try to reduce the consequences of these challenges. This paper also suggests 2 city forms: 1) Compact city and 2) Multi – modal urban region. It also discusses pros and cons of these forms and applicability in other countries with different densities. It also highlights on sustainable buildings where buildings should be planned as such so that sunlight penetrates the buildings. But only this much doesn't satisfies conditions for sustainable city form. Behvaiours, lifestyles and people's aspirations satisfies the conditions for sustainable environment.

This paper also indicates that economic growth cannot be achieved only by economic development but social and environmental aspects should also taken into consideration which will increase efficiency and quality of life.

8. Environment Management in India

Report presented by Western Australia Trade Office, (2012) clearly focuses on current condition of Air and water pollution in India. As Indian population has moved from 300 million to more than 1billion people, is causing strain on environment, infrastructure and country's natural resources like soil erosion, deforestation, Industrial pollution, land degradation etc. Government of India is also concerned for controlling Air and water pollution as they have implemented "The Air Act, 1981" and Central Pollution Control Board (CPCB) has been established for nationwide monitoring quality of water.

This report also highlights the problems of waste management in India as its most of the part is unorganized. Treatment methods for wastes are: Landfill technology, Recycling and Incineration which has their pros and cons in implementation. Several projects are initiated by the government to manage wastes in recent years. But the energy recovery technique from waste is suitable option than others as it is also followed by many countries. This report suggests that national level policies must be combined with state level policies, local level regulations and by laws. The law should be simple and easy to implement so that transparency can be maintained.

9. Rural Development and Energy Policy

Paper presented by Biggs and Justice, (2011) has broadly explained the role of poverty reduction, mechanization, employment and livelihoods dimensions for Rural Development. It also indicates that Agricultural and Rural Mechanization will leads to the higher agricultural growth which will result in more employment opportunity to the local rural residents which means broad based rural development.

10. Hard struggle and soft gains: environmental management, civil society and governance in Pammal, South India

Bharat Dahiya, (2003) analyses the coordination of women-led civil society(Shankara Nagar Mahlir Manram) organization, local government and local residents of small town Pammal in South India. This paper examines conflicts in solid waste management and their resolution and strategic networking undertaken by a civil society organization in Pammal. During 1990s, its financial condition was weak and with regard to solid waste management, town panchayat had built few collection point but solid waste collection was improper due to which nearby residents did not allow others to dump waste which lead to the problem for others. In 1994, Mangalam Balasubramanian formed a civil society to involve local residents in cleaning the area. In 1996, they have explored an idea of converting solid wastes into manure with the help of vermin-composting technique which became a great success for the society as now they were earning profit out of the solid wastes. When this success story was published in the local press, it gets recognition by the mayor and he promoted this scheme to be used in other parts of Chennai.

11. The emerging role of NGOs in rural development of India: An assessment

Dr. H. Ramakrishna, (2013) highlights the importance of NGOs in developing rural India as they are helping rural residents by conducting agriculture related programs, Health awareness programs, Community development activities, Human resource development related practices, promoting their local trade and industries. Further, this paper also indicates the various problems faced by the NGOs followed by various suggestions to eradicate these problems so that NGOs can assist efficiently in rural development of India.

12. Demystifying 'Tradition': The Politics of Rainwater Harvesting in Rural Rajasthan, India

Saurabh Gupta, (2011) highlights the importance of traditional rainwater harvesting system in this paper by explaining how traditional rainwater harvesting method is implemented by those people and organization who promotes it as an alternative to top-down and state-led development. This paper also emphasize the various work done by the Tarun Bharat Sangh with the ideology: Work for water earns you goodwill, given by its founder Rajendra Singh.

Further, this paper also concludes that Traditional Knowledge is not static but it is ever changing in response to the changes in the wider political economy. It is not frozen, inert, timeless entity, but a dependent on the physical conditions of those whose knowledge it is and the uses to which it is applied.

2.2 International Studies

1. Green and profitable? The potential return to good environmental management

Thesis prepared by Wilhelm Helmer Mohn, (2006) to investigate professed link between good environmental performance and corporate returns. It also highlights some simple models to further examine reputation and eco efficiency. This analysis concludes that more environmentally friendly firms have higher profits. Furthermore, this thesis also investigates a empirical link between environmental performance and managerial quality.

2. The profitable shift to green energy

Wayne Boley, (2012) emphasize the importance of going green for sustainable development by producing goods with the help of green technology. Wal-Mart, IKEA, Tesco and Target like companies have set sustainability goals at varying degree and are pursuing ways to meet them. This paper also states that becoming energy efficient is the first step toward reaching sustainability goals. For implementing renewable energy source, five factors: energy prices, technological effectiveness, incentives, capital expenditure, operations and maintenance so that this sustainable movement for development can become profit making steps for the organization in long run.

3. Pure Profit: The financial implications of environmental performance

Report prepared by Repetto and Austin, (2000) demonstrates how environmental issues can successfully be integrated into financial analysis. It explains a newly developed methodology derived from fundamental principles of financial analysis and demonstrates the approach by applying it empirically to companies in the U.S. pulp and paper industry. This report answers the need for a tool with which to assess the potential impact of environmental performance on shareholder values and investors' risk. With this tool, financial analyst can evaluate environmental pressures facing the companies. Further, they can estimate environmental risks and potential liabilities before their impacts are felt on earning and balance sheet.

4. Using Traditional Knowledge to cope with climate change in Rural Ghana

Gyampoh et.al, (2013) discusses the role of Traditional Knowledge in managing the impacts of climate change in Ghana by referring that local people of this particular region, are not aware of the concept of global warming or climate change but they observe and feel effects of decrease in rainfall which causes the scarcity of water in whole the region and they utilize their knowledge to conserve the water as they reuse it to irrigate backyard gardens and nurseries to minimize water use per person per day. This paper also emphasize on the need of further studies on Traditional Knowledge so that it can be utilized efficiently to handle climate changes.

5. Emerging Issues in Rural Development: An Issues Paper

Maxwell et.al, (2001) broadly highlights that changing nature of rural circumstances and development thinking indicates need to keep development policies updated so that these policies can work in more effective manner. It also states that the poverty conditions in African countries, as there are two third of the rural poor live in areas of low agro-ecological potential and/or poor communities. This paper also highlights the various other emerging issues in rural areas like (i) Rural Risks and vulnerabilities, due to increased risk of natural disasters, (ii) Technological targeting, due to declining rate of technical progress in developing countries, (iii) Diversified livelihood, due to growing concern to non-farm activities, (iv) Rethinking institutional capacity and governance, As significant capacity building is necessary for dealing with current rural problems. Therefore, there is a need of holistic comprehensive policy for the development of rural poor.

6. Indigenous Knowledge for Development: Opportunities and Challenges

Nicolas Gorjestani, (2000) states that IK (Indigenous Knowledge) can play a vital role in Rural development and eradication of poverty by combining indigenous institutions, indigenous appropriate technology and low cost approaches in formulating efficient rural development program. This paper also highlights the contribution of World Bank in Africa for preserving Traditional Knowledge by launching the "IK for Development Program" which includes creation of Indigenous Knowledge database of over 200 indigenous practices. This program assists World Bank to improve their national and regional networking capacity. This paper also highlights various challenges for the World Bank like encouraging more counties to formulate and implement strategy for IK integration, enhancing the capacity of national and regional IK network and promoting the local exchange and adoption of IK.

7. Green and Profitable: Mission Impossible

In this paper, Sebastian and Maessen, (2010) highlights the increasing acceptance of Green Profit as major corporate giants like Siemens is now looking to earn every second euro with green product and McDonald has changed its logo colour from red to green to signal respect to the environment. Although, there are barriers which are faced by the companies when the aims to go with the green products and solutions.

This paper also highlights various advantages that push green products and solutions as per the survey 90% of the managers accepts that going green can enhance image and product brand value of the company and they also accepts that this concept provides good arguments in sales talks. This paper also indicates two more approaches: first, a company must ensures that customer connects the performance of its "green" products to its brand and second, the respondents felt that market leaders are responsible for setting the tone in pushing "green" products.

8. New Challenges and Opportunities for Rural Development, by Anita Kelles-Viitanen[19]

This paper figures out various challenges faced by the rural people like Climate change resulting in floods and drought, emerging knowledge economy by bio-patenting of indigenous knowledge of rural societies, emerging wide spread animal diseases like bird flu, which affects the rural poor more. Therefore there is not only need to identify the need of the rural poor so that a constructive plan can be formed. This paper also emphasize on role strengthening the role of innovation and identifying farmers and other rural residents as legal expert in the area where they work.

9. **Dynamics of Rural Development: Analytical and Policy Issues**

Romeo M. Bautista, (1994) observed rural development as the major issues by the politicians and policymakers in the Philippines. First section of this paper is to explore interconnectedness among conceptual, empirical, and policy issues relating to agricultural growth, rural development, and overall economic growth in the Philippines. The second and third section deals with the critical understanding of the Rural Non-Farm Enterprises (RNEs), how it meets the demand generated by the agricultural growth and its role in the upliftment of the rural sector and thus overall economic growth. Fourth section highlights the various aspects of RNEs, and how it influences the economic performances. Fifth section focuses on the reforms in the current policies so that other non-agricultural activities can be elevated for the rural upliftment.

This paper concludes that despite agriculture being the predominant source of income for the rural population, expansion of rural-non-agricultural activities are required for self-sustaining and equitable growth of the Philippines. The focus is on the RNEs and its upliftment for the rural development and thus the overall economic growth.

SECTION 3: OBJECTIVES OF THE STUDY

In the light of studies done so far and the prospect of augmenting sustainable initiatives in the backward regions, the objectives of the proposed study are as follows:

1. **To study the socio-economic-environmental vulnerabilities prevalent in Mathura Rural Region.**

2. **To analyze the linkages between Green Rural Development, Traditional Knowledge and Habitat in the Region.**

3. **To identify the role of Industries, Government Organizations and the Social Institutions in facilitating Green Rural Development initiatives in the Region.**

4. **To recommend Comprehensive Green Development action plan and strategies for effective and timely implementation of economically sustainable Environment Management Practices.**

SECTION 4: RESEARCH DESIGN AND METHODOLOGY

4.1 Nature of the Study: Qualitative and Exploratory

Under the broader context of this study, linkages between the following variables are proposed to be analyzed:

- **Social, Economical and Environmental development in Mathura Rural Region.**
- **Social, Economical and Environmental development initiatives.**
- **Traditional Knowledge and Green Rural Development.**
- **Green Rural Development and Green Profit making.**

4.2 Sources of Data:

The investigator seeks to gather both qualitative and quantitative data. The researcher will also make use of the secondary sources of data collection in the form of gathering published materials such as extracts from relevant Journals, Reports, Books, Blogs, Periodicals, Websites and other online resources covering the present study. Researcher seeks to focus on primary data to analyze the present condition of Mathura and its rural areas. Secondary data on the concepts and practice of Green Rural Development will be incorporated into the proposed study to make it more comprehensive and objective-oriented.

4.3 SAMPLING TECHNIQUE: CLUSTER SAMPLING:

Cluster sampling involves grouping the population and then selecting the groups or the clusters rather than individual elements for inclusion in the sample.

4.4 GEOGRAPHICAL AREA COVERAGE

The area for study will be National Capital Reason comprising of Mathura district and its all 10 blocks, which are:

- Baldeo
- Chaumuha
- Chhata
- Farah
- Goverdhan
- Mat
- Mathura
- Nandgaon
- Nauhjhil
- Raya

BLOCKS NAME	Total Population	Working Population	Literacy Rate Male/Female	Water Supply Sources /Benefited population		Railway station, halt /Bus Station, stop		Industries (Registered and unregistered) /Employed Persons		Number of Hospitals
1.Nandgaon	108906	43778	70.46/38.15	48	108906	1	6	937	3154	1
2.Chhata	151522	61688	67.75/29.28	72	151522	1	8	922	7113	4
3.Chaumuhan	109979	51989	68.48/28.67	52	109979	1	6	677	2022	3
4.Goverdhan	163482	64532	81.98/50.41	52	163482	2	10	799	2260	1
5. Mathura	211704	66119	79.93/60.02	95	211704	3	16	1642	11981	2
6. Farah	125890	40852	76.89/38.65	76	125890	2	10	756	2201	3
7. Nohjheel	154914	73808	75.83/37.49	97	154914	0	8	722	2358	3
8. Mant	138996	60350	76.36/37.24	60	138996	0	6	770	2417	4
9. Raya	166115	72130	78.35/43.27	99	166115	1	6	1025	2994	2
10. Baldeo	155985	70595	78.74/40.36	85	155985	0	6	734	2333	4
Total Block	1487493	605841	76.50/43.40	736	1487493	11	82	8984	38883	27

(Source: http://updes.up.nic.in/spatrika/engspatrika/tab642004.asp)

As per the given data in the above mentioned table, it can be identified that working population is very less in proportion to the total population while there is a significant difference of 33.10 percent between male and female literacy rate. Other problems like water supply sources, railway station and bus stops, number of industries and hospitals are also very less in comparison to the total population. We can highlight the problems of Mathura Rural Region as stated below:

- Working population is very less in proportion to the total population.
- Female literacy rate is very less in comparison to the national literacy rate.
- Water supply sources are not in adequate numbers in proportion to the population.
- Some of the blocks even don't have a single railway station.
- Industries are very less in proportion to the population.
- Health services are not adequate as there are very less number of hospitals in each block.

4.5 SAMPLE COMPOSITION

To meet the objectives of the study, I will be employing judgmental sampling as we have set certain criteria for the study which are as follows:

- **Number of Rural Blocks of Mathura - 10**

  - As this research is focused on the development of Rural region of Mathura, therefore researcher will consider 2 villages per block of Mathura for the study.

- **Number of Respondents from each block - 20**

  - Respondents are categorized into four categories divided on the basis of male, female, literate and illiterate. 5 respondents from each category will be identified for this purpose from each village who will actually speak about the various problems of that particular village and their suggestions will also be important to frame the solution for them.

- **Number of Companies established in local NCR - 10**

  - Companies who are contributing in the Rural Areas Development like companies related to Telecommunication, solar power, Wind power, Biogas and Biodiesel companies, will be identified for the sampling in the NCR Region.

- **Number of respondents from each company - 05**
  - Respondents of managerial level involved in Corporate Social Responsibilities related activities.

4.6 SAMPLE SIZE

A total of 450 respondents who will complete the questionnaire in every aspect are taken into account for the study where 400 respondents will be from rural area and 50 respondents will be from the various companies. Validity and reliability of the questionnaire will be established on the basis of previous researches and pilot survey.

CALCULATION OF SAMPLE SIZE:

Sample size = $\dfrac{(\boldsymbol{Z\ score})^2 * \boldsymbol{Standard\ deviation} * (\mathbf{1} - \boldsymbol{standard\ deviation})}{(\boldsymbol{Margin\ of\ error})^2}$

$= \dfrac{(\mathbf{1.96})^2 * \mathbf{0.5} * (\mathbf{1} - \mathbf{0.5})}{(\mathbf{.05})^2} = \mathbf{384.16}$

$= \mathbf{385}$

- **Z score corresponds to the confidence level. Here confidence level is taken at 95%, so its corresponding Z-score is 1.96.**
- **Since survey hasn't actually administered yet, so the variance in the responses can't be expected. The safe decision is to use standard deviation as 0.5, this is the most forgiving number and ensures that the sample will be large enough.**
- **Margin of error is +/- 5% at 95% confidence level.**

4.7 STATISTICAL TOOLS FOR DATA –ANALYSIS

a) Case Study Method:

The case study method is a very popular form of qualitative analysis and involves a careful and complete observation of a social unit, be that unit a person, a family, an institution, a cultural group or even the entire community. It is a method of study in depth rather than breadth. The case study places more emphasis on the full analysis of a limited number of events or conditions and their interrelations.

b) System Dynamics/ Causal Modeling:

System dynamics is a powerful methodology to understand and discuss the behavior and structure of complex problems over a time. It applies to dynamic problems arising in complex social, managerial, economic, or ecological systems-literally any dynamic systems characterized by interdependence, mutual interaction, information feedback, and circular causality. (J. D. Sterman, 2000)

Causal modeling normally consist of sets of equations, indicating a web of causal and non-causal relations among the variables of interest. It models the relations between the properties or characteristics of the system, which are represented by variables. (M. C. Jackson, 2003)

c) Analytic hierarchy process (AHP):

The Analytic Hierarchy Process (AHP) is a theory of measurement through pair-wise comparisons and relies on the judgments of experts to derive priority scales. This scales measures intangibles in relative terms. The comparisons are made using a scale of absolute judgments that represents, how much more, one element dominates another with respect to a given attribute. (T. L. Saaty, 2008)

d) Correlation Analysis:

Correlation analysis analyses the joint variation of two or more variables for determining the quantum of correlation between two or more variables.

e) T- Test:

T-test is based on t-distribution and is considered an appropriate test for judging the significance of a sample mean or for judging the significance of difference between the means of two samples in case of small sample (s) when population variance is not known (in which case is use variance of the sample as an estimate of the population variance).

f) Chi- Square Test:

The Chi-square(x^2) test is applicable in large number of problems. The test is, in fact, a technique through the use of which it is possible for all researchers to: (i) test the goodness of fit; (ii) test the significance of association between tow attributes, and (iii) test the homogeneity or the significance of population variance.

4.8 GANTT CHART:

The Proposed plan of work as will be conducted, is shown in the following GANTT CHART:

Activity	Year 2014-15				Months							Year 2015-16
	2	4	6	8	10	12	14	16	18	20	22	24
1. Review of Journals and Literatures												
2. Collection of Data												
3. Processing and Research Methodology work												
A. Actual Data Processing (Primary)												
B. Known Data Processing (Secondary)												
4. Result and Discussion												
5. Final Review												
6. Thesis Work												
7. Correction												
8. Final Typing												

SECTION 5: MANAGERIAL IMPLICATIONS

Economical Perspective:

There is an immense possibility for local industries in Mathura and National Capital Region to identify various supply centers which could possibly be promoted in Mathura Rural Region and which could be used as future business and trading purposes. It will require corporates to analyze the linkages between their existing businesses and the kind of supply industries which may feed to the business with their outputs provided by rural industries.

Social Perspective:

By being associated with such schemes and programs business units can very effectively serve their Corporate Social Responsibilities norms as prescribed and made mandatory in recently amended companies act. Beyond this it will also earn them very high social and environmental premium which will eventually translate into commercial results.

SECTION 6: PROPOSED CHAPTERIZATION OF THESIS

Chapter 1: **Introduction**

1.1 Introduction to Environment Management and Green Rural Development
1.2 Emergence of Green Profit and Analysis of Traditional Knowledge
1.3 Backwardness and Vulnerabilities of Mathura Rural Region
1.4 Significance and Scope of The Study

Chapter 2: **Review of Literature**

2.1 National Studies
2.2 International Studies

Chapter 3: **Research Methodology**

3.1 Research Objectives
3.2 Sample Design
3.3 Sampling Technique
3.4 Sample Size and Statistical Techniques Used
3.5 Geographical Coverage

Chapter 4: I **Findings and Analysis of Selected Area**

II **Interpretation of Results**

Chapter 5: I **Conclusion & Recommendations**

II **Scope for future Research**

Appendix & Bibliography

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